

# MSc placement students inform a future University of Brighton heatwave health plan

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Harriet Dodd, Dayna Kingshott, Amanda Livingstone



**University of Brighton**

School of Sport and  
Service Management



**Environmental Extremes Lab**



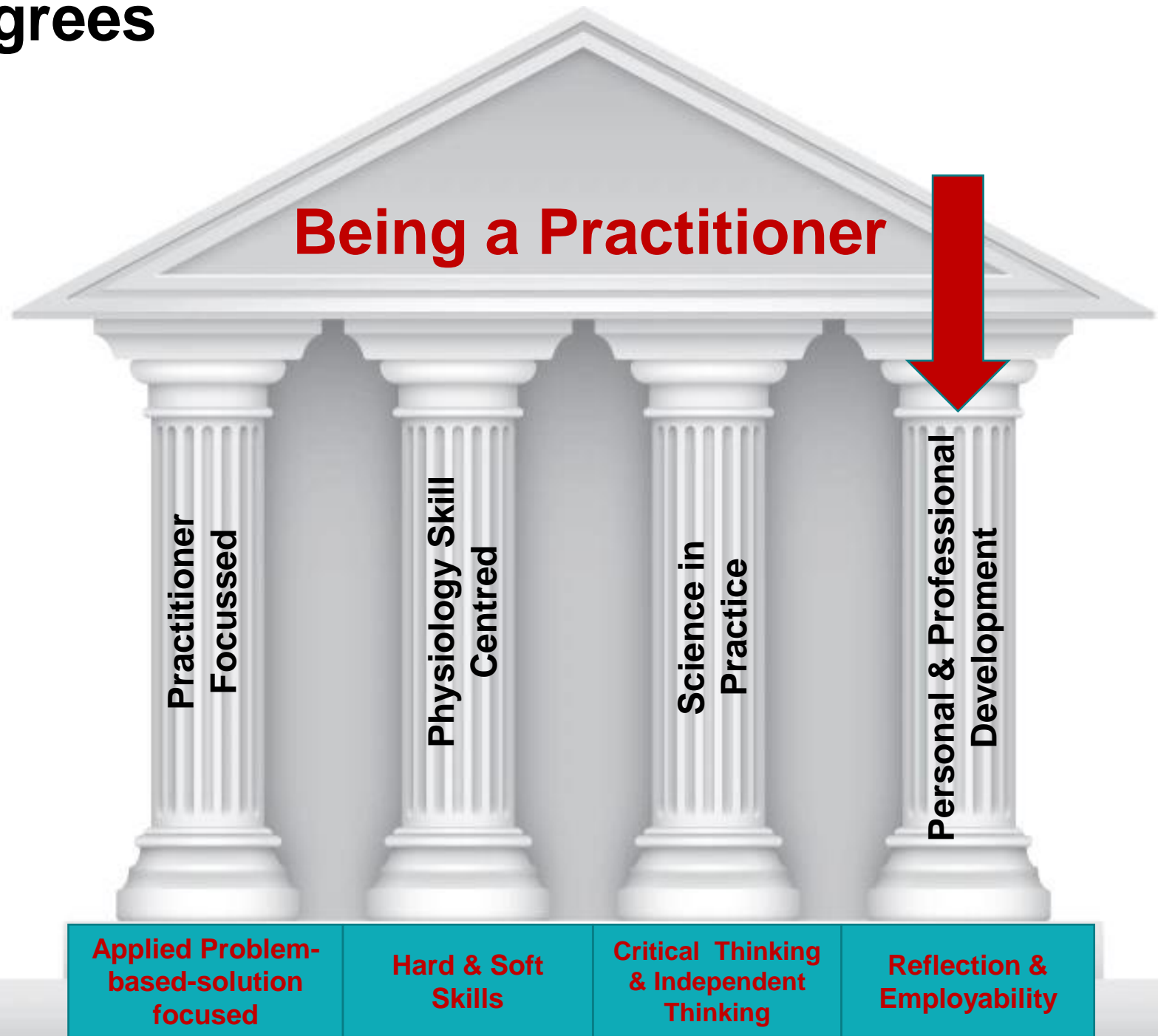
**University of Brighton**

Education and Student Experience Conference  
Tuesday 6 and Thursday 8 July 2021

Online | MS Teams

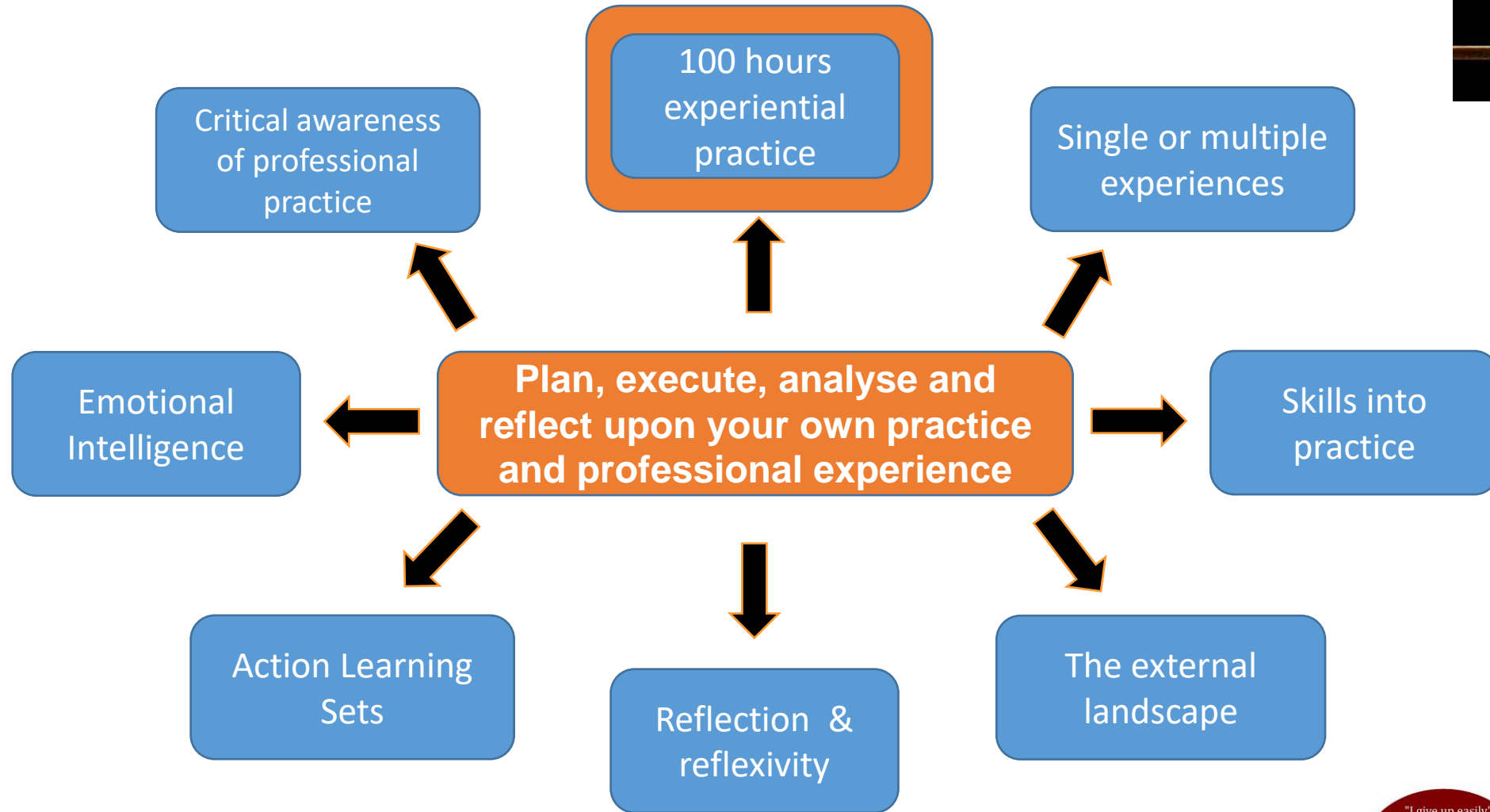
# 4 Pillars of our MSc Degrees

MSc Applied Sport Physiology  
MSc Applied Exercise Physiology  
MSc Strength & Conditioning



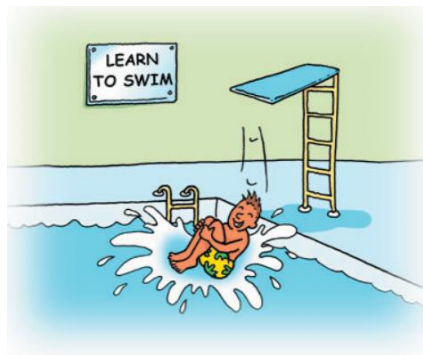
# So What is the Module About?

Slow  
burner

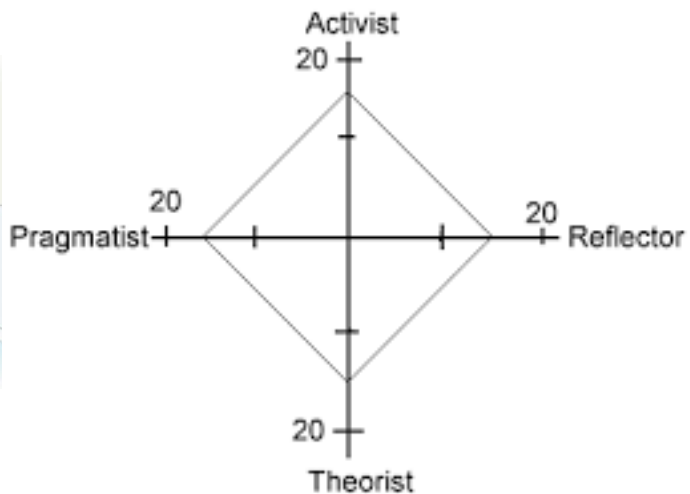
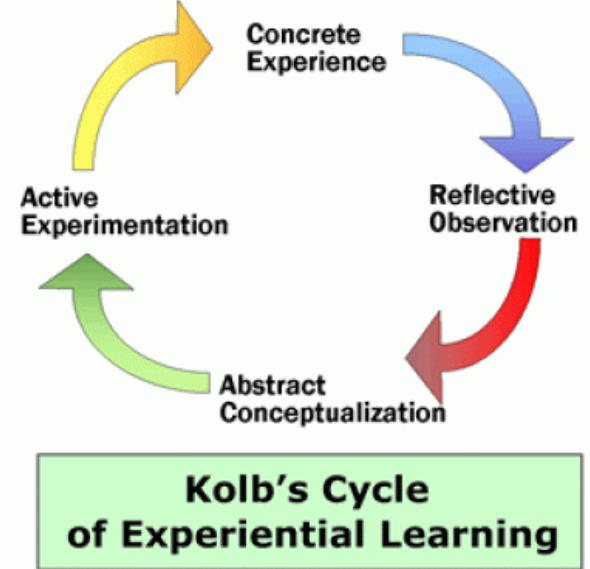


80% Placement-based





Where were you,  
where are you,  
where are you going?



Strengths  
& Weaknesses

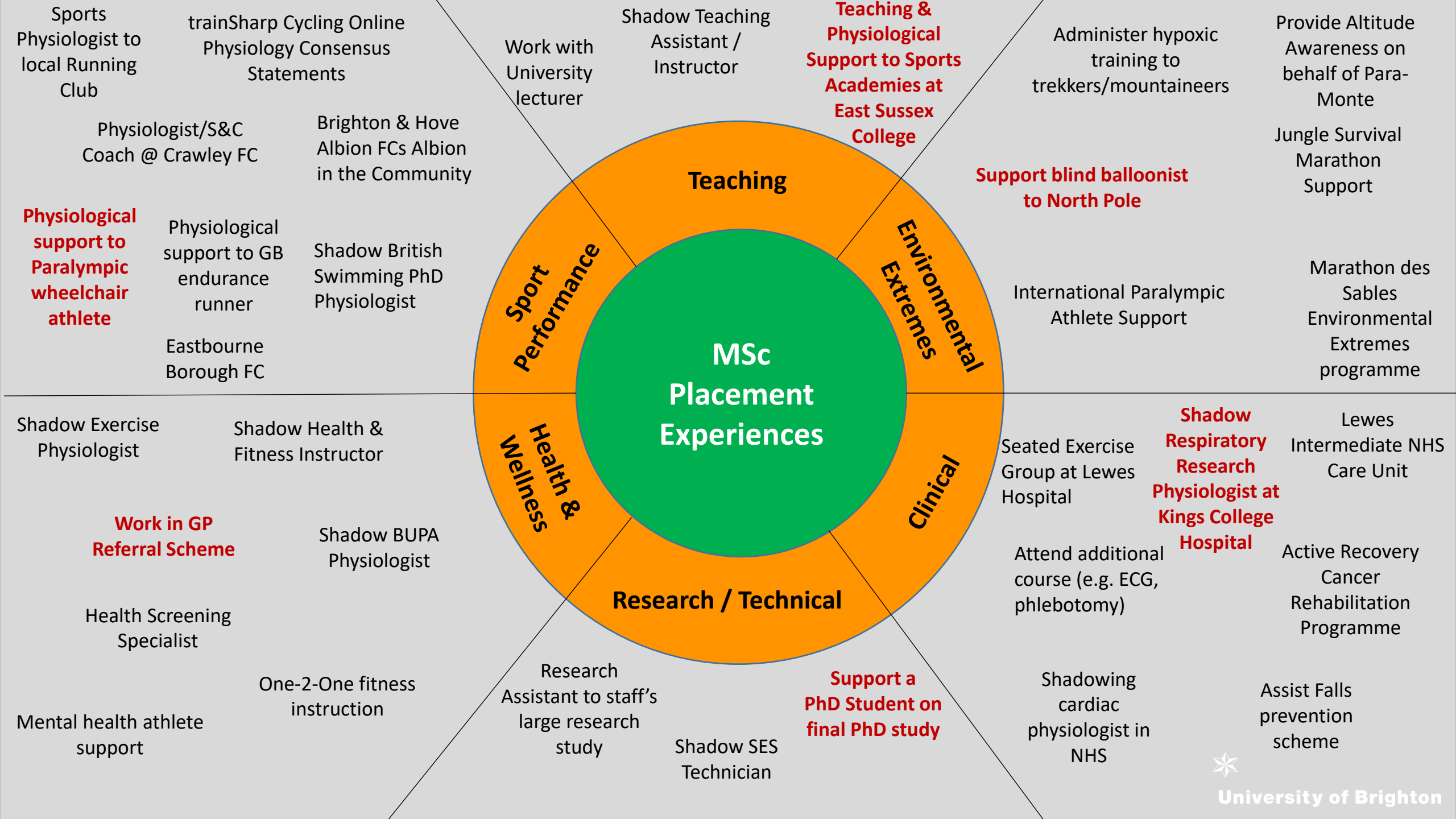


Honey and Mumford's  
Learning Styles

Personal & Professional  
Objectives



Belbin Team Roles **Team**



# Aim of Presentation

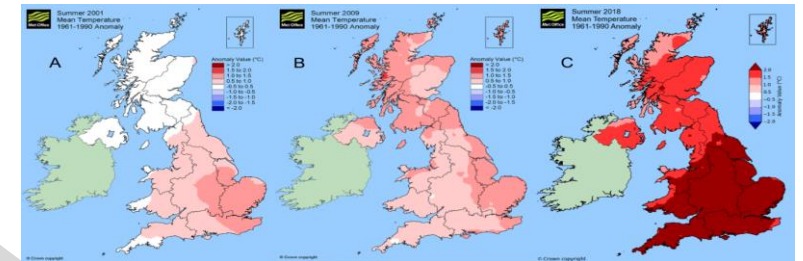
- To present 7 placement opportunities, specifically the **UoB Heatwave Health Placement Project**
- To provide a **rationale** for why the university needs a heatwave plan
- To detail the **outcomes** from the UoB Heatwave Health Placement Project
- To **reflect** upon the UoB Heatwave Health Placement Project



# 7 Placement Opportunities

1. trainSharp Cycling Online Physiology Consensus Statements
2. **International Paralympic Committee Online Heat Mitigation Resources for Tokyo 2021**
3. Lands' End to John O'Groats Challenge
4. Ski the 7 Summits Project
5. **Marathon des Sables Heat Acclimation Support**
6. **Para-Monte Altitude Awareness**
7. **Heat Wave Health Plan for University of Brighton**

24 applications from 13 students!



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1992-1993: 1992-1993

doi:10.1371/journal.pone.0199013.g001

# Rationale for UoB Heatwave Plan

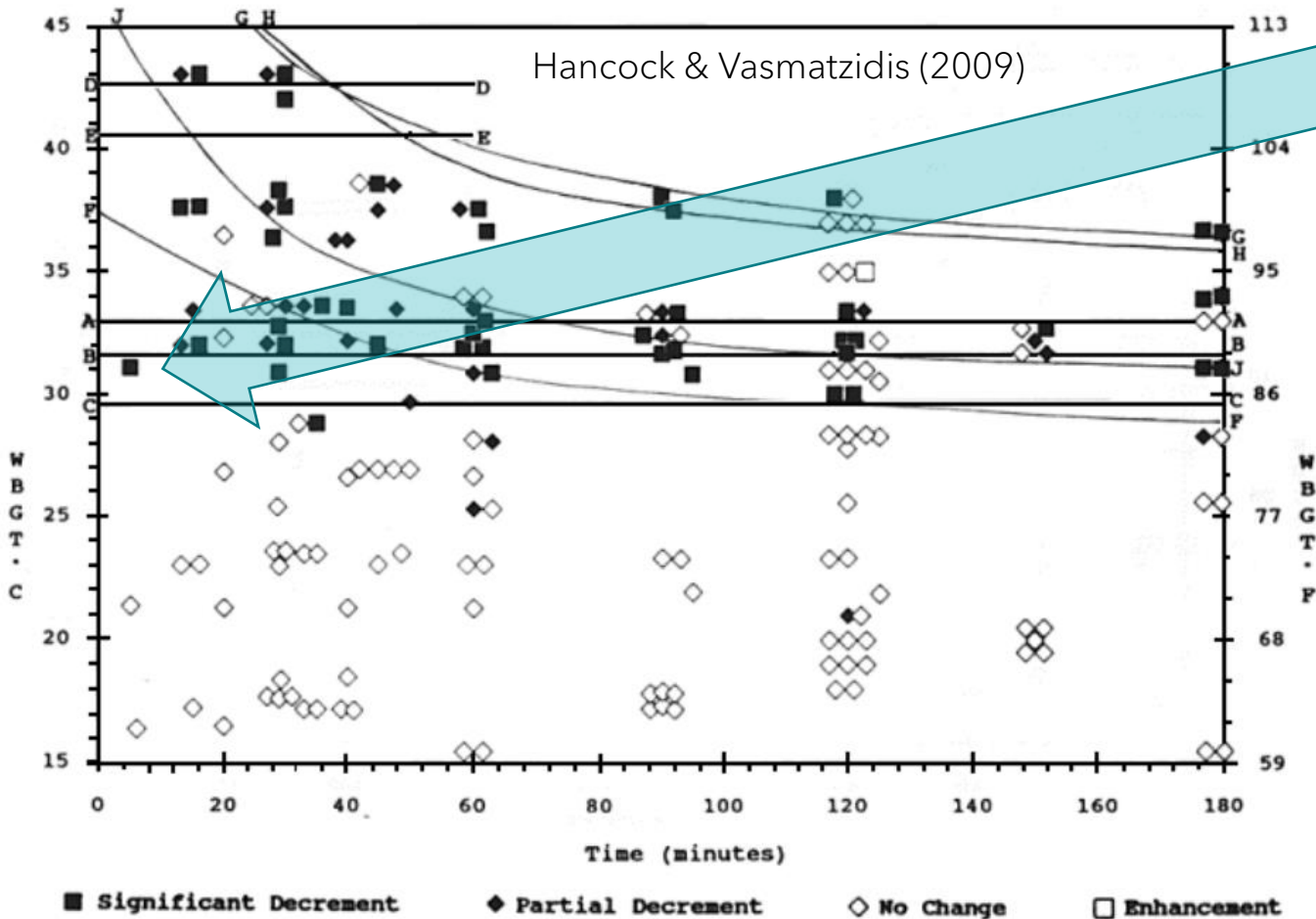
Heatwaves - extended period of hot weather relative to the expected conditions of the area at that time of year



- Summer temperatures in the UK are on the rise, with expectations for temperatures to continue to increase in years to come
- In 2020 2,555 deaths related to heatwaves
- With 2,244 deaths observed in the 65+ years age group
- 311 of these deaths were observed in the 0-64 years age group



# Cognitive Performance Declines under Heat Stress



- Studies show significant and partial decrements in perceptual motor tasks performed above 30°C for as little as 4 minutes...

- What about an office for 8 hours?

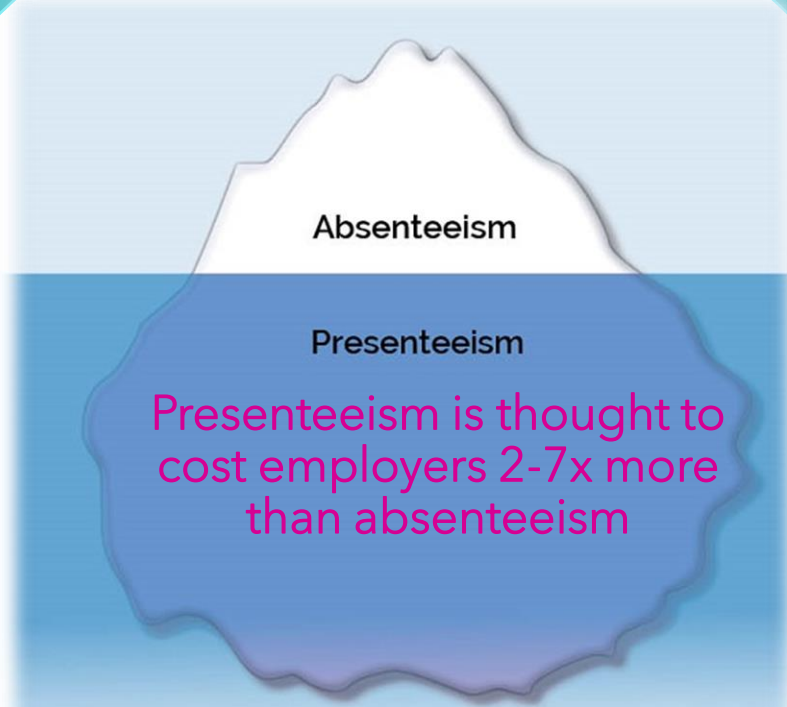
- Severity & duration of heat exposure
- Complexity of cognitive task
- Skill and familiarity of individual performing the task

**Thermal threshold of a core temperature of 38.2°C**

- If greater than this, **dual-task performance** and **complex-task** sharing are **negatively impacted** by heat strain



# Presenteeism



Presenteeism is thought to cost employers 2-7x more than absenteeism

On average, presenteeism costs businesses ~£605 per person each year...

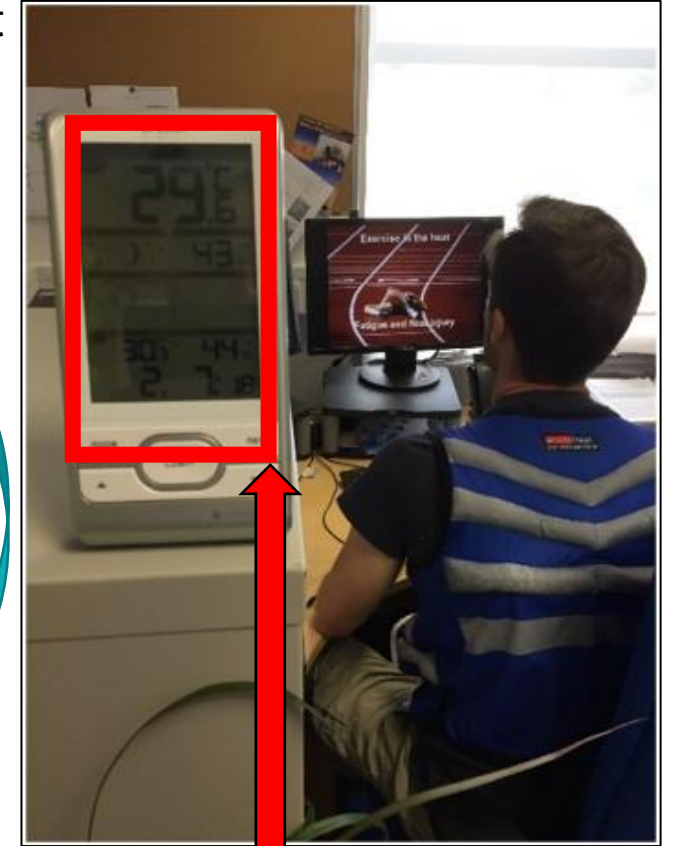
Staff working in the university may be affected by working in adverse hot conditions:

- **No air conditioning**
- **Open plan / small rooms**
- **Manual tasks**
- **PPE needed**
- **Cumulative heat stress**

**Other factors:**

- Co-morbidities
- Vulnerability
- Pre-work exercise (even walking to work)
- Dehydration (teaching/meeting schedule)

contribute to raising workers' core temperature > thermal threshold of 38.2°C



29.6°C

## Heatwaves are an invisible killer – and the UK is woefully unprepared

August 20, 2020 11:56am BST

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35

128

The COVID-19 pandemic continues to cause suffering around the world, but another killer has silently struck in summer 2020. With relatively little by way of official warning or advice on how people can stay safe, recent heatwaves may have cost thousands of lives across the UK and western Europe. And these extreme weather events are arriving more often and in longer, deadlier bouts.

Author



**Chloe Brimicombe**  
PhD Candidate in Climate Change and Health,  
University of Reading

Disclosure statement


# Student Plans

1. Survey staff on knowledge of UK Heatwave Plan and heat illness symptoms
2. Present to Healthy Lives Sub-Committee feeds into of University Executive Board
3. Write a supporting justification report
4. Follow-up focus group with staff
5. Create resources around heat mitigation to support staff (and students)



In progress

## University of Brighton Heatwave Plan



University of Brighton


### Summary

The University of Brighton Heatwave Plan would be an adapted, localised version of the 'Heatwave Plan for England' created by Public Health England, alongside the Met Office, NHS and Government. The Heatwave Plan for England illustrates the steps that should be taken before and during periods of hot weather – guiding individuals and organisations with measures that can be put in place to mitigate heat, reduce health risks and protect at-risk populations.


In August 2003, England experienced a 10-day heatwave that saw over 2,000 excess deaths. These excess deaths are the result of heat-related conditions, which can occur following the onset of very warm weather. In fact, one to two days of the temperature rising can cause heat-related illnesses and lead to death. Following the 2003 heatwave, the 'Heatwave Plan for England' was developed in response to the event.

Within the heatwave plan for England (section 1.3.5 – Communicating with the public), it is suggested that local heat-related health information is communicated to raise awareness of excessive exposure to heat, how individuals will be informed of a potential heatwave and what preventive action can be put in place. Therefore, we have proposed that the University of Brighton should develop such a plan that can be specific to the individuals at this institution; especially considering the impact heat exposure can have not only on physical health but also cognitive ability too.

The Heatwave Plan for England can be found here: [Heatwave Plan for England - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/heatwave-plan-for-england), alongside other necessary documents illustrating how we can 'Beat the Heat'.



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"The health effects of extreme heat events can be experienced in the general population, resulting in subclinical symptoms, like cognitive function deficits" (Cedeño *et al.*, 2018).

In a study on students living in non-air conditioned spaces, Cedeño Laurent *et al.*, (2018) found that these students had significant increase in reaction time during a cognitive test (the STROOP colour-word test). A reduction in reaction time and ability to concentrate can also result in work-loss productivity. If staff are unable to work efficiently and complete as many tasks or to the same accuracy as they would have been able to during cooler environments, this may reduce productivity within institutions.


There is a continual increase in 'warm spells' in the United Kingdom; with the UK's top ten warmest years on record all having occurred since 2002 (<https://www.metoffice.gov.uk/weather/climate-change/effects-of-climate-change>) – and this is going to become a common theme in years to come. Therefore, it is imperative a plan is put together to assist staff and even students towards the vast array of physical and cognitive impacts heatwaves can bring.



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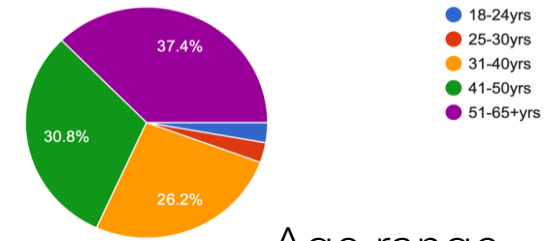
## The University of Brighton Heatwave Health Project

Charlotte Avery, Dayna Kingshott,  
Harriet Dodd and Matthew Cheeseman.



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# Survey: Did you know?



**Did not know a national heatwave plan exists**



**Unaware of Public Health England Alert System**

Level 0	Long-term planning - All year
Level 1	Heatwave and Summer preparedness programme - 1 June – 15 September
Level 2	Heatwave is forecast – Alert and readiness - 60% risk of heatwave in the next 2 to 3 days
Level 3	Heatwave Action - temperature reached in one or more Met Office National Severe Weather Warning Service regions
Level 4	Major incident – Emergency response - central government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health

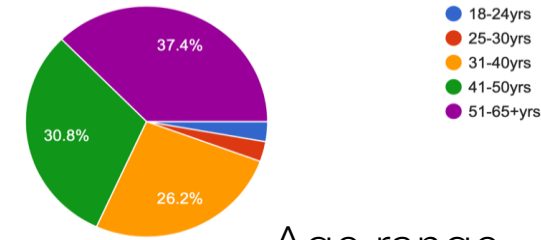


**Able to successfully identify heat-related illness based on symptoms**



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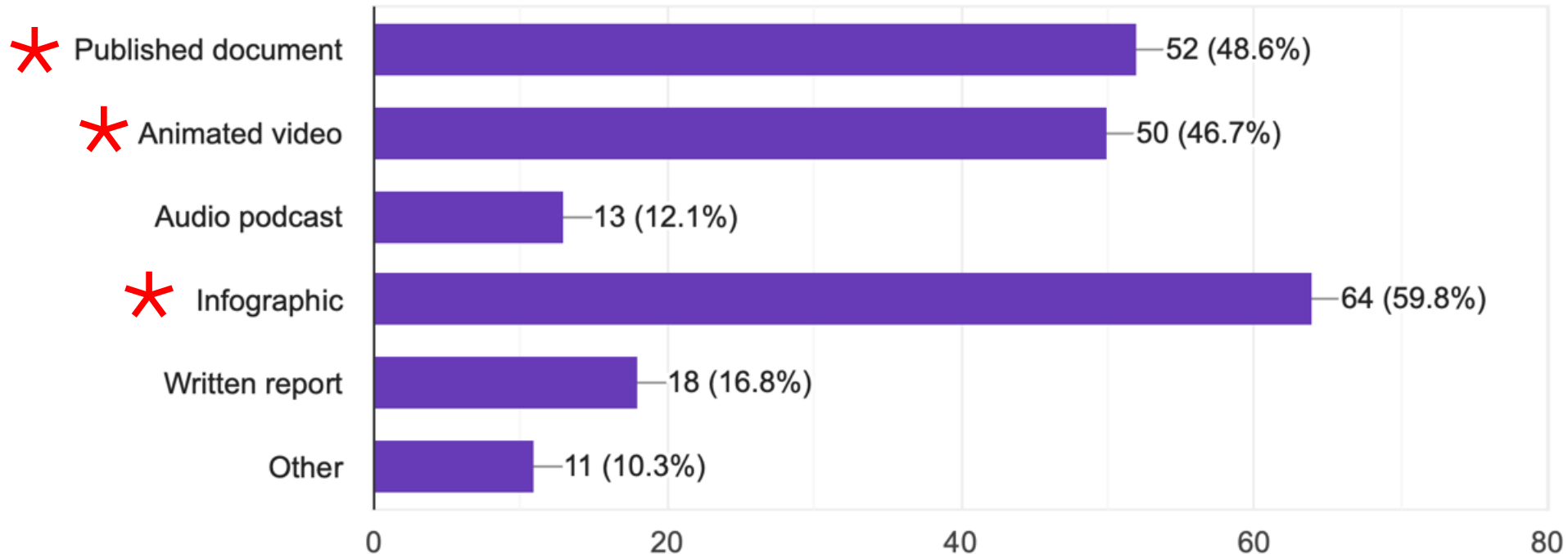
# Survey: What do staff want?



Age range

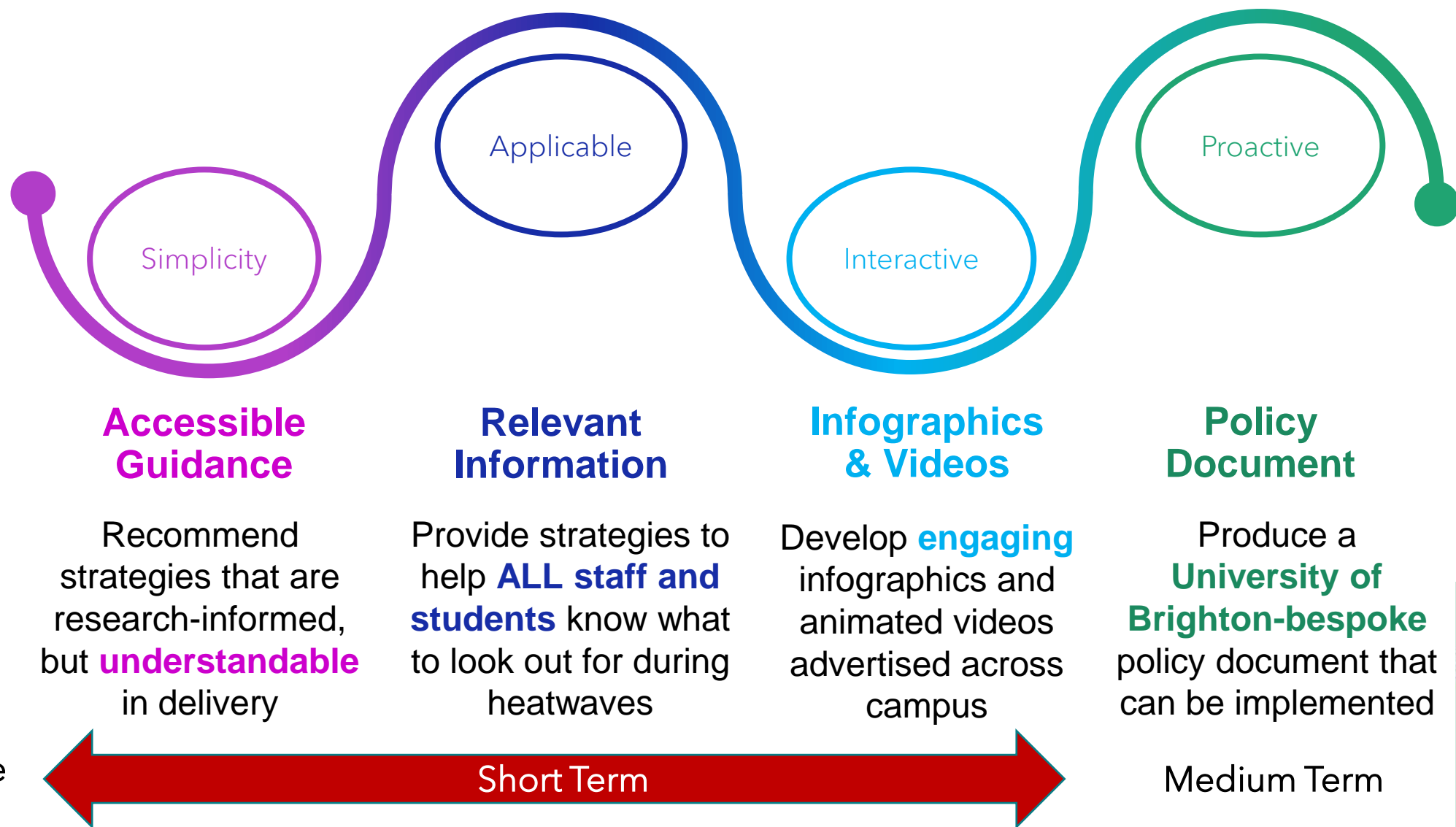
To increase awareness surrounding the dangers of hot weather and what to do to help yourself, what methods would you most likely follow and keep up to date with? (choose all that apply).

107 responses





# Guiding Principles for Heat Mitigation Resources



## AT A GLANCE – MITIGATING HEAT STRESS RISK

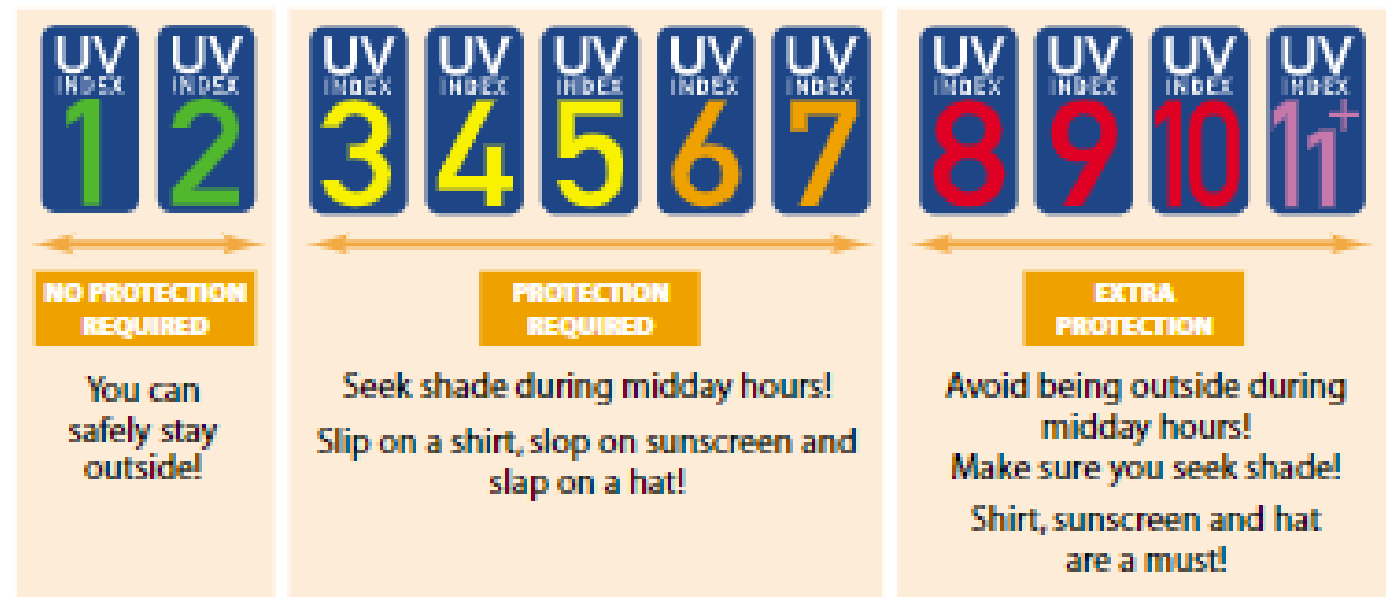
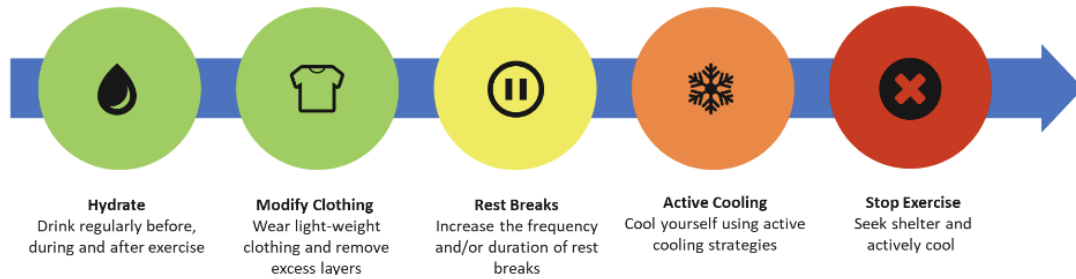


Figure 2.1: Heatwave Alert levels

Level 0	Long-term planning - All year
Level 1	Heatwave and Summer preparedness programme - 1 June – 15 September
Level 2	Heatwave is forecast – Alert and readiness - 60% risk of heatwave in the next 2 to 3 days
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# Heat Mitigation Resources

**BEAT THE HEAT: Extreme Heat**  
Heat-related deaths are preventable

**WHAT:**  
Extreme heat or heat waves occur when the temperature reaches extremely high levels or when the combination of heat and humidity causes the air to become oppressive.

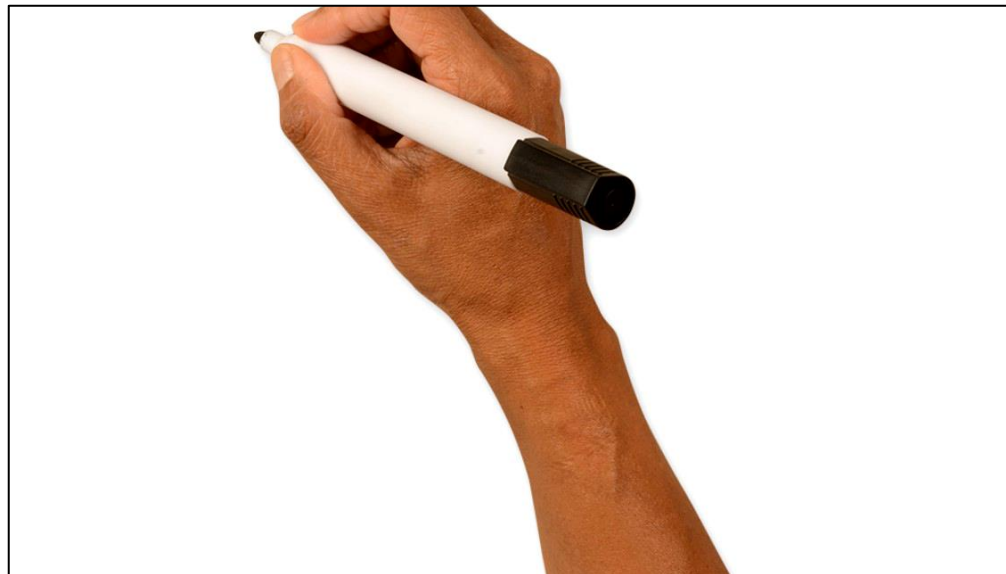
**WHO:**  
Children, Older adults, Outside workers, People with disabilities

**WHERE:**  
Houses with little to no AC, Construction work sites, Cars

**HOW to AVOID:**  
Stay hydrated with water, avoid sugary beverages, Stay cool in an air conditioned area, Wear lightweight, light colored, loose-fitting clothes

During extreme heat the temperature in your car could be deadly!

Outside temperature 80°  
Inside 109° (25 minutes), Inside 118° (40 minutes), Inside 123° (60 minutes)



**DID YOU KNOW?**

Those living in **urban areas** may be at a greater risk from the effects of a prolonged heat wave than those living in rural areas.

Most **heat-related illnesses** occur because of overexposure to heat or over-exercising.

**Sunburn** can significantly slow the skin's ability to release excess heat.

During 1999–2009, an average of **658** people died each year from heat in the United States.

**\$30 BILLION** estimated total cost of the 2012 US drought and heatwave.

For more information on ways to beat the heat please visit:  
<http://www.cdc.gov/disasters/extremeheat>

**CDC** Centers for Disease Control and Prevention Office of Public Health Preparedness and Response

# Heat Mitigation This Summer



# Reflections

1. Internal placements can provide rich learning environments
2. Encourage engagement with wider university community
3. Important to have an application process (video pitch)
4. Benefits for students and university
5. Need for University Heatwave Health Plan!

## • CORRESPONDENCE MADE BY STUDENTS

- AMANDA LIVINGSTONE (Safety Hub Manager)
- DR NEIL MAXWELL (Supervisor & Environmental Extremes Laboratory Lead)
- PATT WRANGLES (Head of Student Wellbeing)
- SABRINA HUSSAIN (Head of Health and Counselling)
- KERRY BURNETT (Senior Marketing Officer)
- DANIEL QUIN (Operational Manager for SaSM/SHS)



“extremely rewarding to be a part of a project that has facilitated an important move towards addressing the heatwave topic”

“We have been involved in a collaborative team which has been both interesting and challenging”

“I feel we have made a big impact on the university and its members in the attempt to begin to address this”

“I believe the presentation we delivered was impactful and a good start”

“Taking part in this placement has been an extremely eye-opening experience”

“I knew, like many other, that heatwaves were becoming more frequent, however I was not aware of the impact they would have in England, and the varying ways they could affect people”

“During this placement I have realised the urgency of a heatwave plan”

A word cloud of adjectives in various colors (blue, purple, pink) on a light grey background. The words are arranged in a circular pattern around the center. The largest words are 'Impactful' (blue) at the top, 'Important' (purple) in the middle, and 'Informative' (blue) at the bottom. Other words include 'Surprising', 'Intriguing', 'Worthwhile', 'Meaningful', 'Thought-provoking', 'Eye-opening', 'Relevant', 'Necessary', 'Simple-solutions', 'Enlightening', 'Urgent', 'Interesting', 'Insightful', 'Collaborative', 'Rewarding', and 'Urgent'.

Impactful

Surprising

Rewarding

Intriguing

Collaborative

Worthwhile

Urgent

Interesting

Insightful

Meaningful

Important

Relevant

Enlightening

Necessary

Simple-solutions

Informative

Thought-provoking

Eye-opening

“it is nice to develop on this personally and learn in a different way”

“how little we know about a phenomenon that happens every year was quite surprising”

# OUR MESSAGE IS SIMPLE:

**A Heatwave Health Plan could support University of Brighton Staff and Students mitigate against heat stress, presenteeism and adverse health complications**



**University of Brighton**

**Thank you for listening!**



**Environmental Extremes Lab**